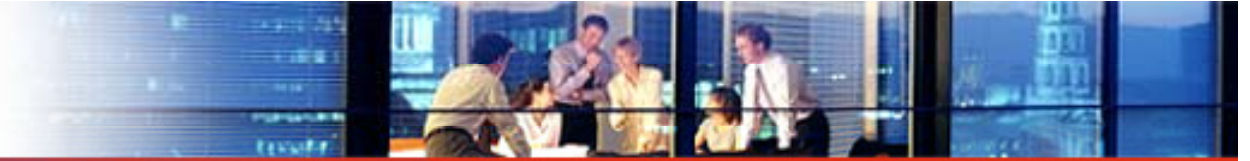


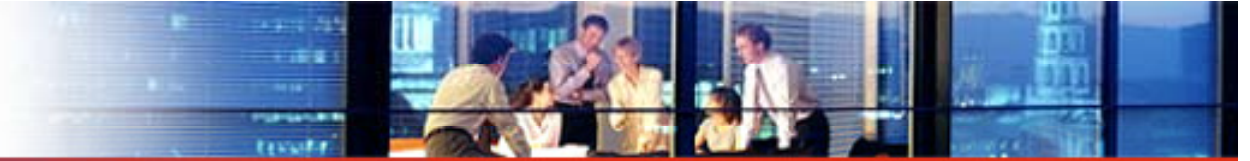
Readiness and Coherence in Crazy Times



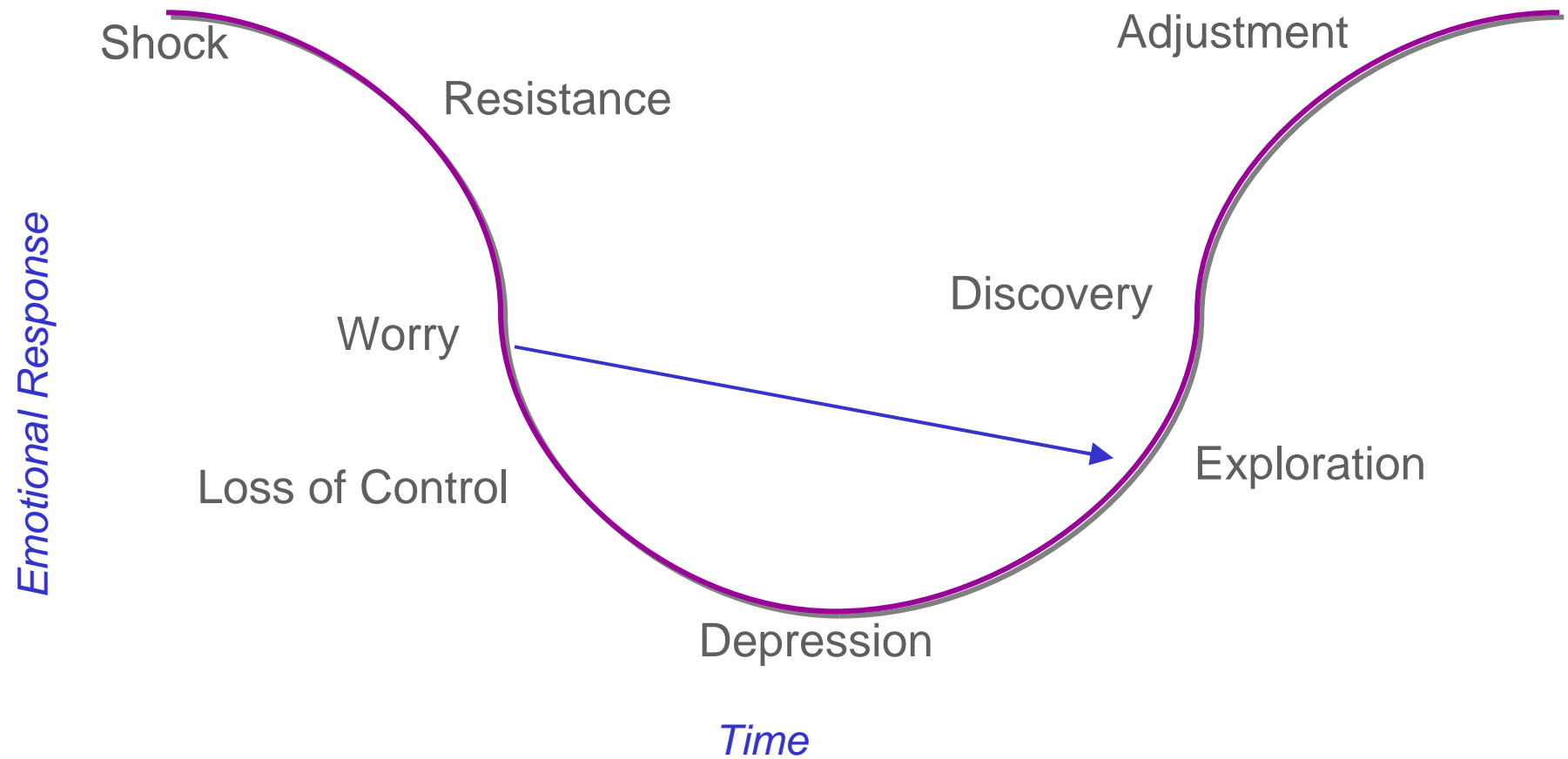
Bruce Cryer * Center Director's Colloquia Series
NASA Goddard Space Flight Center * December 1, 2004

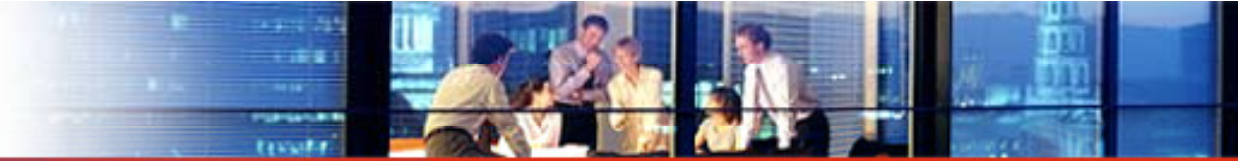


Have you noticed any uncertainty lately?



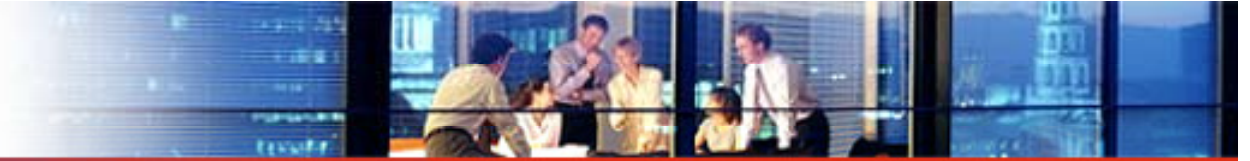
The Change Curve



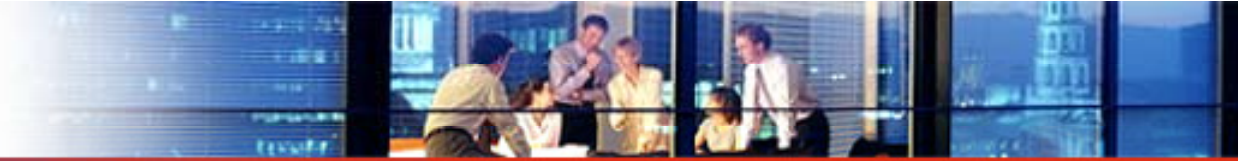


We live in a time of unprecedented change.

 **New times require new intelligence.**

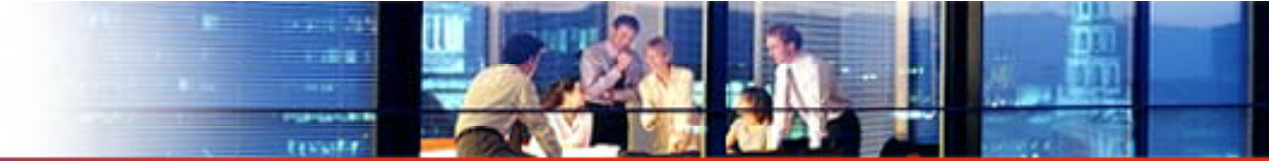


What changes are making the biggest personal impact on you now?

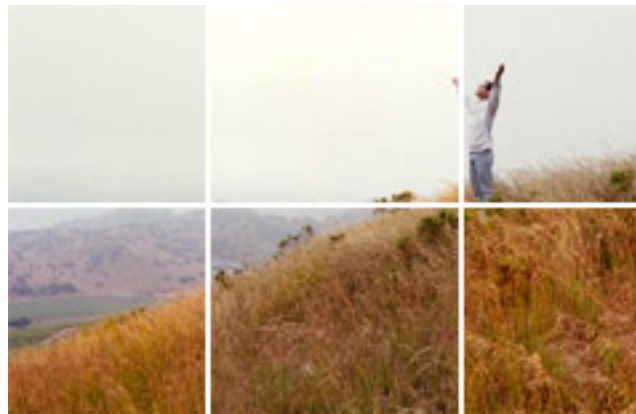


✱Objectives of today

- Recognize subtle stress signals before they become chronic
- Recalibrate your system after a stressful episode
- Boost your performance and quality of life through two simple techniques
- Boost your own internal “coherence” to enhance productivity, communication skill and personal satisfaction
- Understand why *not* communicating your concerns damages you and inhibits progress
- Learn how to muster extra energy for problem-solving and decision-making

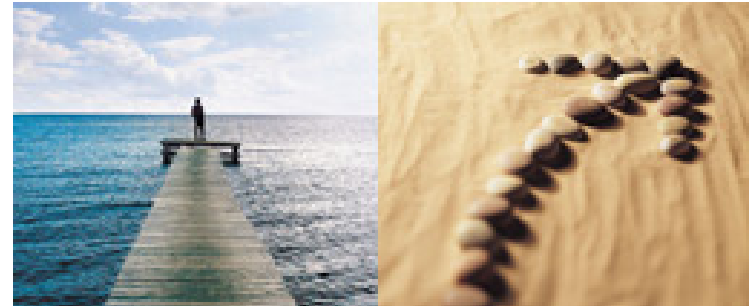


How do you feel when work is a joy, when you're in the zone, when communication is effortless?



We call it... Coherence

- Ordered patterning within one system
- Synchronization between multiple systems
- Clarity of thought



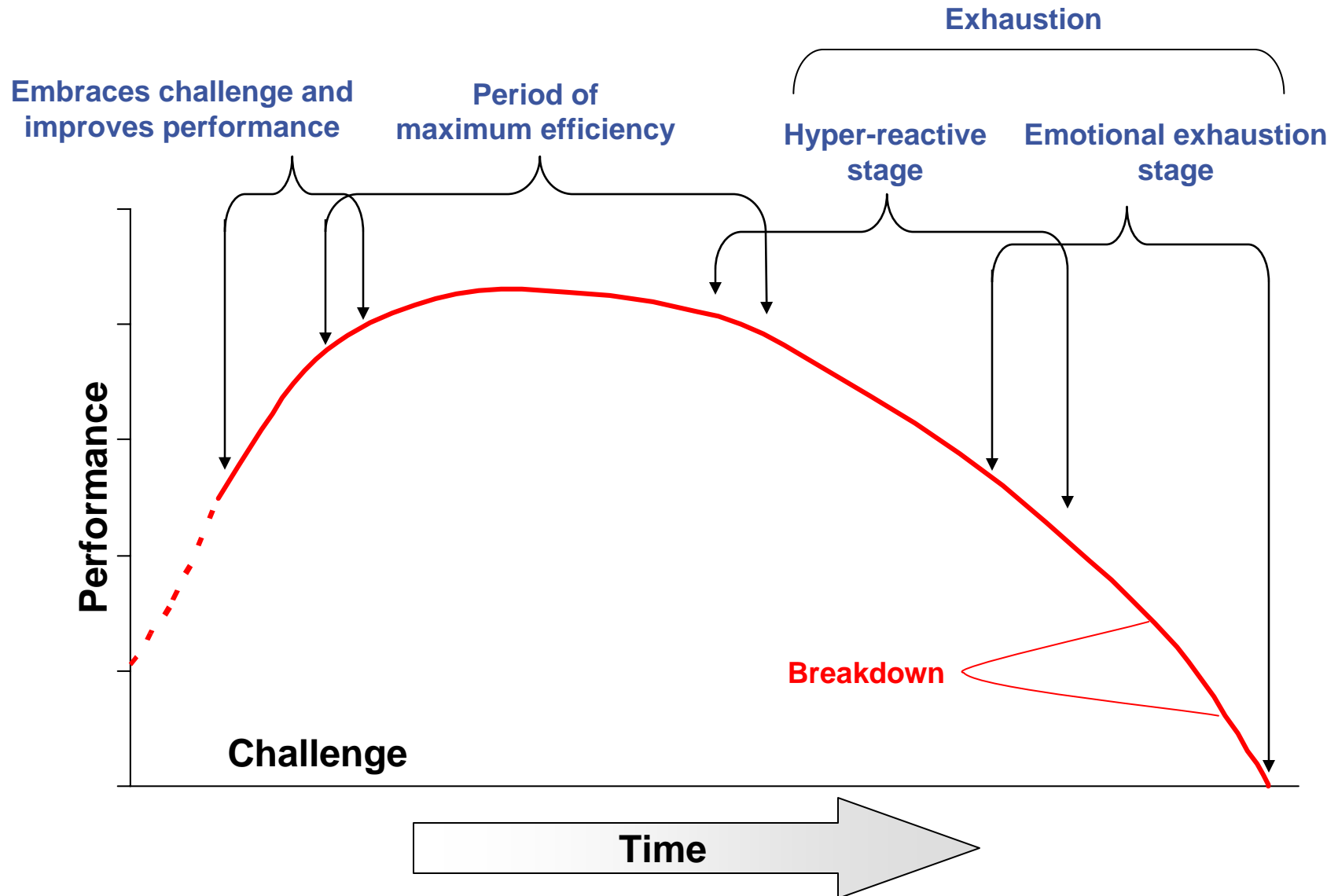
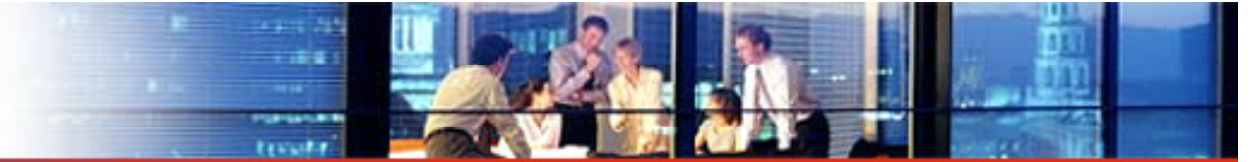
 **Increased Coherence = Less Stress =
Higher Performance**

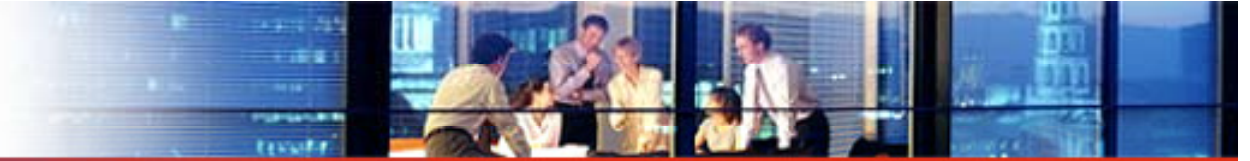


What is Stress?



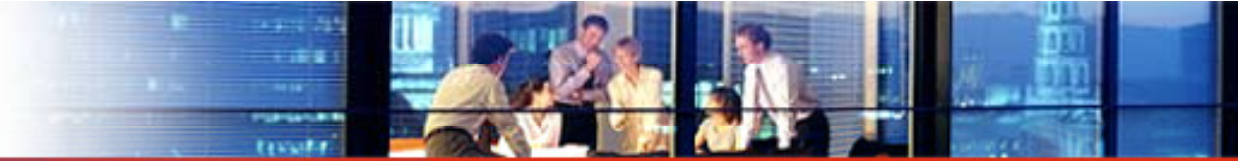
the emotional and physiological reaction to a threat, whether real or imagined, resulting in a series of adaptations by our bodies.





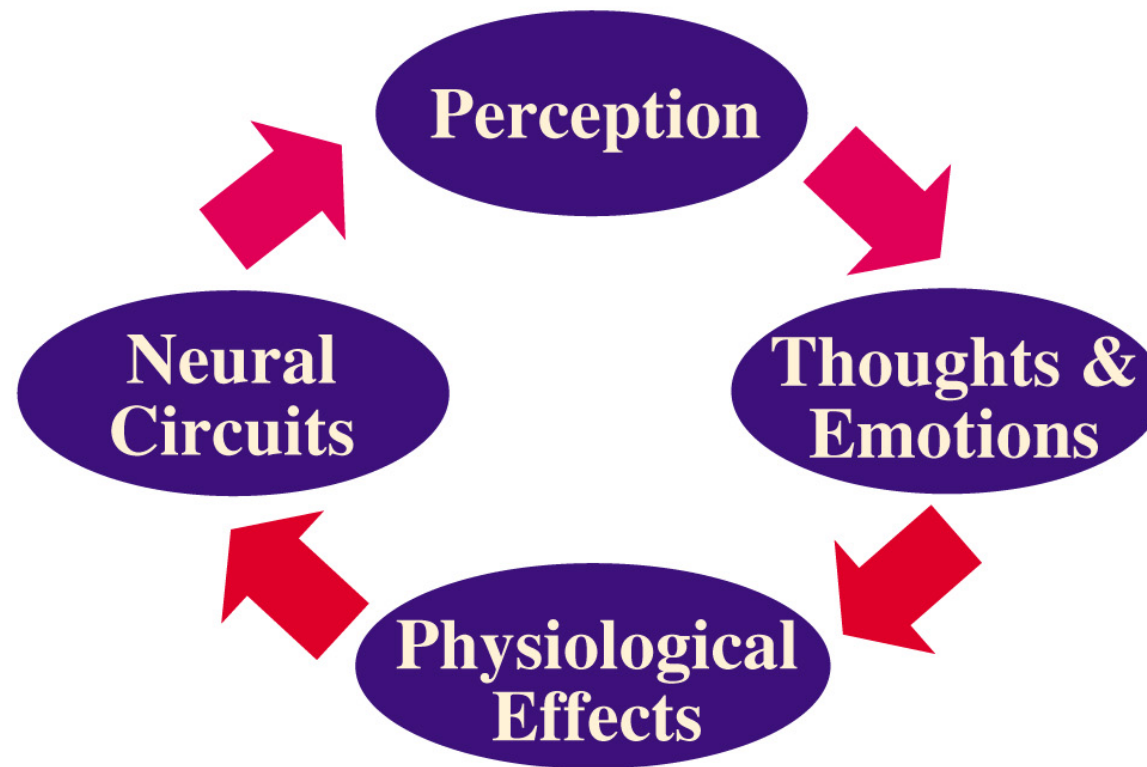
Performance tip #1

 **Pay increased attention
to your stressful feelings**



A quick test of perception

The Perception Cycle



Emotional Memory

Two Pathways

Emotional Perception



SENSORY CORTEX

Slow Track

Thalamus

Amygdala

Fast Track



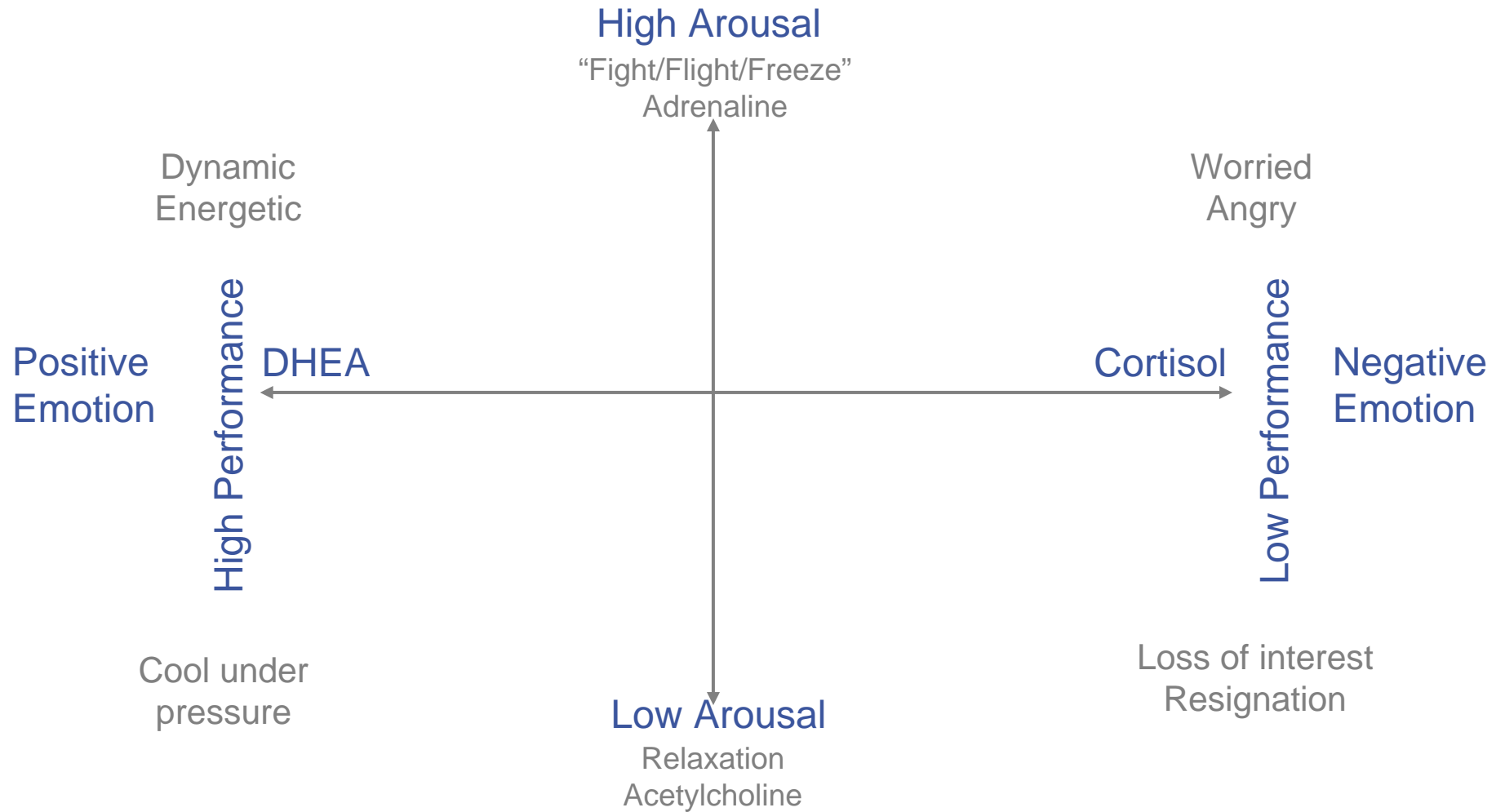
Trigger Memories

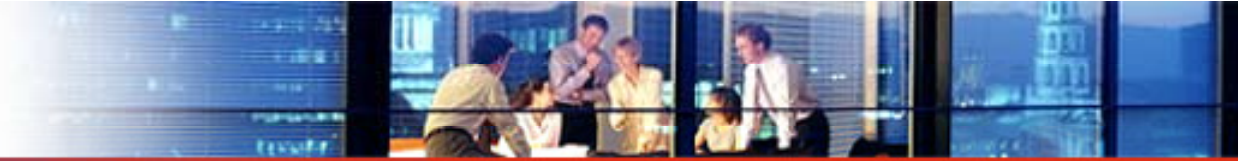


Activation of ANS and stress hormones



❖ The Physiology of High Performance

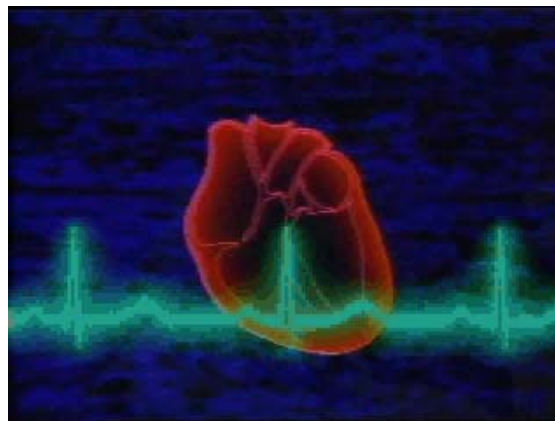
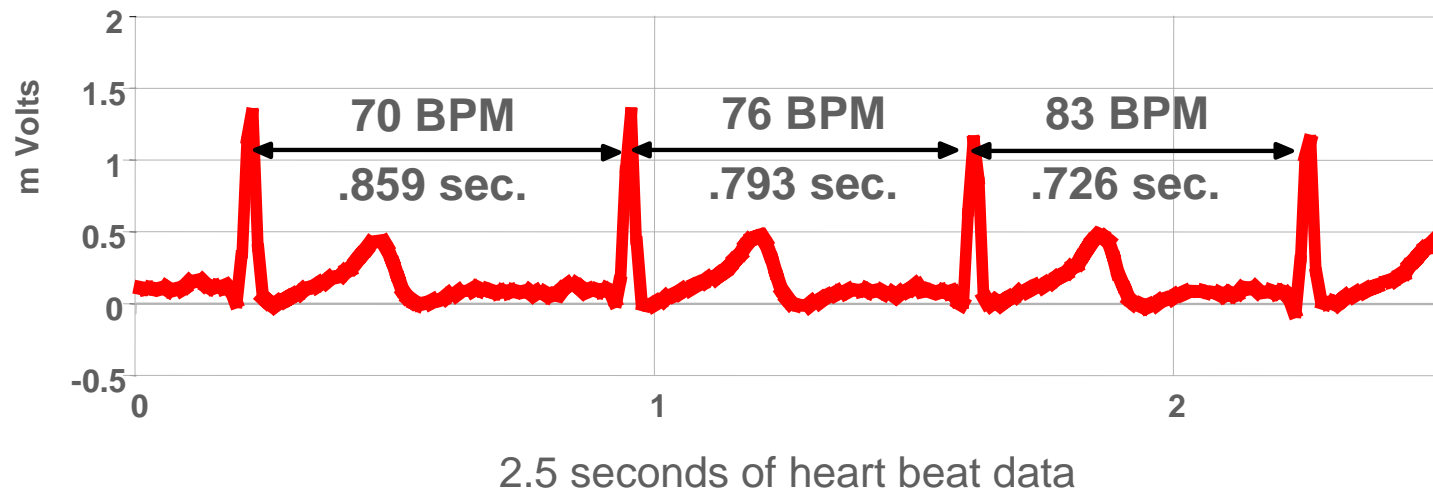




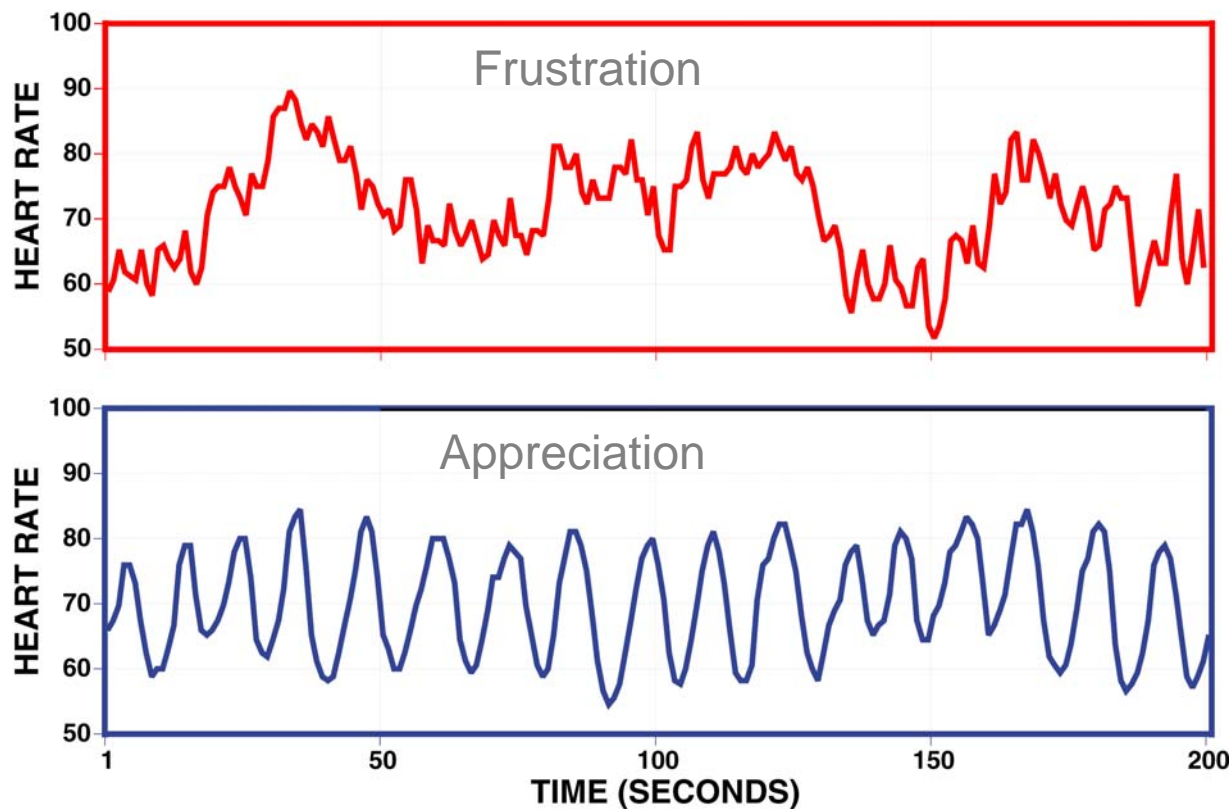
 **Don't be controlled by what you can't control.
Control what you can.**

**Start with your physiology,
thoughts and emotions.**

Heart Rate Variability (HRV)

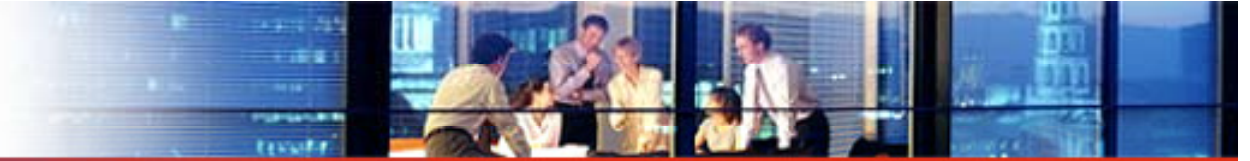


High Performance requires Physiological Coherence



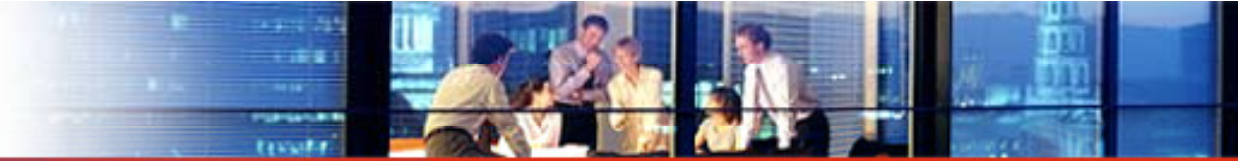
**Cortical
Inhibition**
(chaos)

**Cortical
Facilitation**
(coherence)



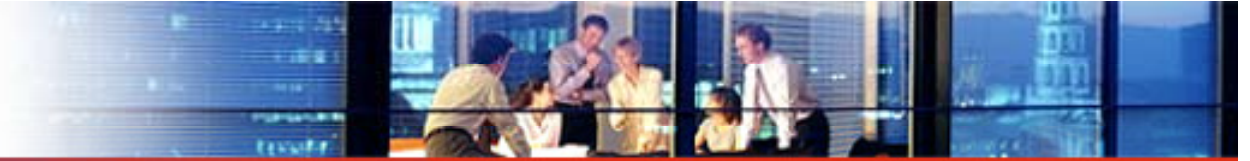
The Physiology of Non-communication

- Failure to communicate results from -- *and leads to increased* -- feelings of frustration, powerlessness, resignation, fear of consequences.
- All these “negative” emotions are damaging to our system – *cardiovascular, immune, hormonal, neurological* – creating inflexibility and increased rate of aging.

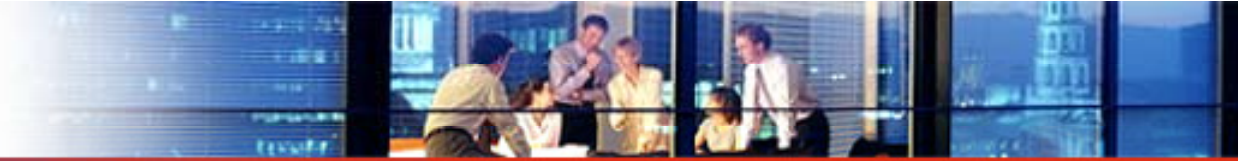


Flexible attitudes build flexible physiology





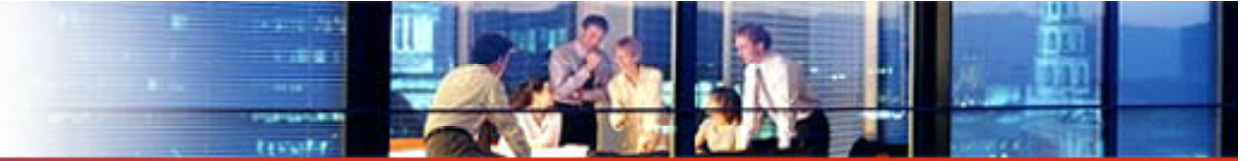
A short movie ...
on how different things can look



Performance tip #2

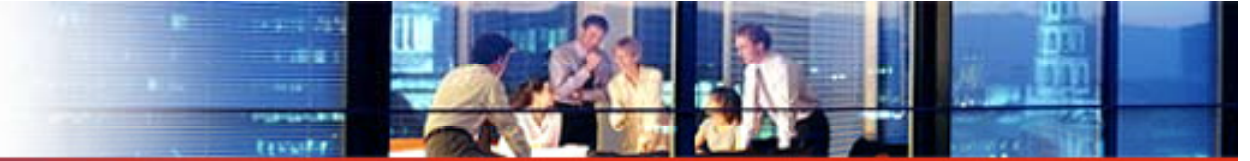
 **Manage and select optimal emotions.**

**...because emotion affects physiology,
which in turn influences every aspect of your performance.
The alternative is needless aging.**



Benefits of Physiological Coherence

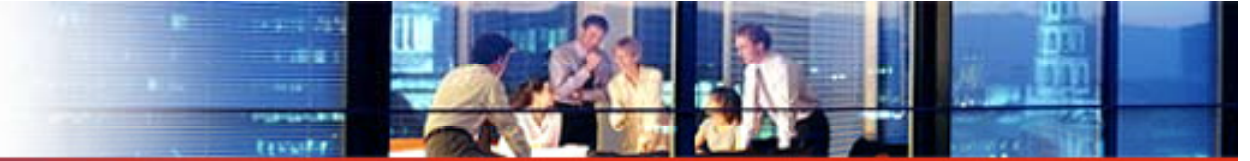
- Improved cognitive performance (McCraty, 2001)
- Increased calmness and well-being (Friedman, 2000)
- Improved attitudes and behaviors (McCraty, 1998)
- Increased emotional stability (McCraty, 2001)
- Improvements in health, e.g., asthma, blood pressure and heart disease (Lehrer, 2000) (McCraty, 2001) (Luskin, 2002)



Take control: **Get Neutral**

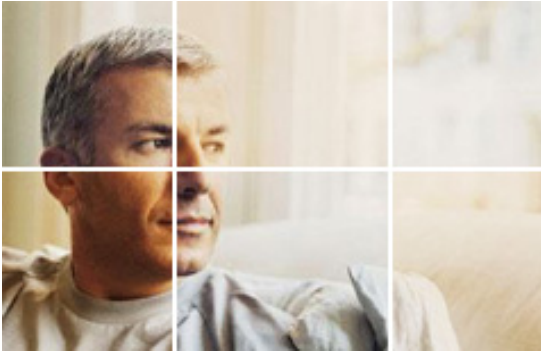
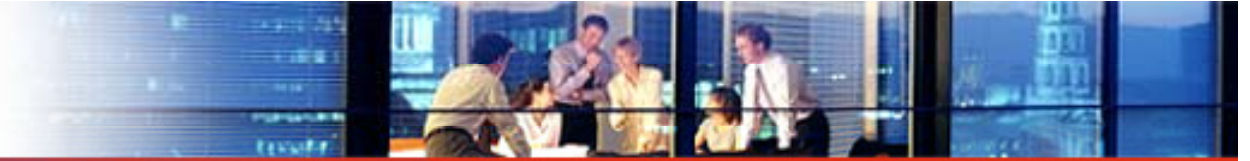
When you need to:

- Recalibrate your system during or after a stressful episode
- Reduce the feeling of overload
- Deal with uncertainty without aging your system.



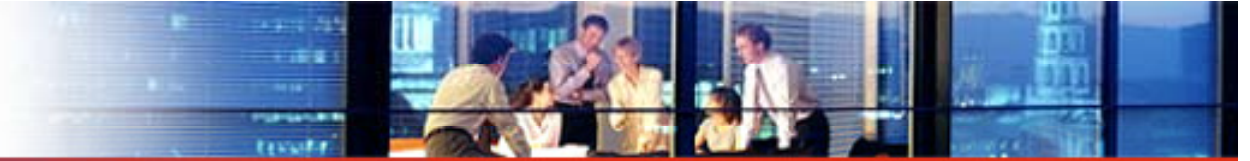
**“There has been much tragedy in my life.
At least half of it actually happened.”**

-- Mark Twain



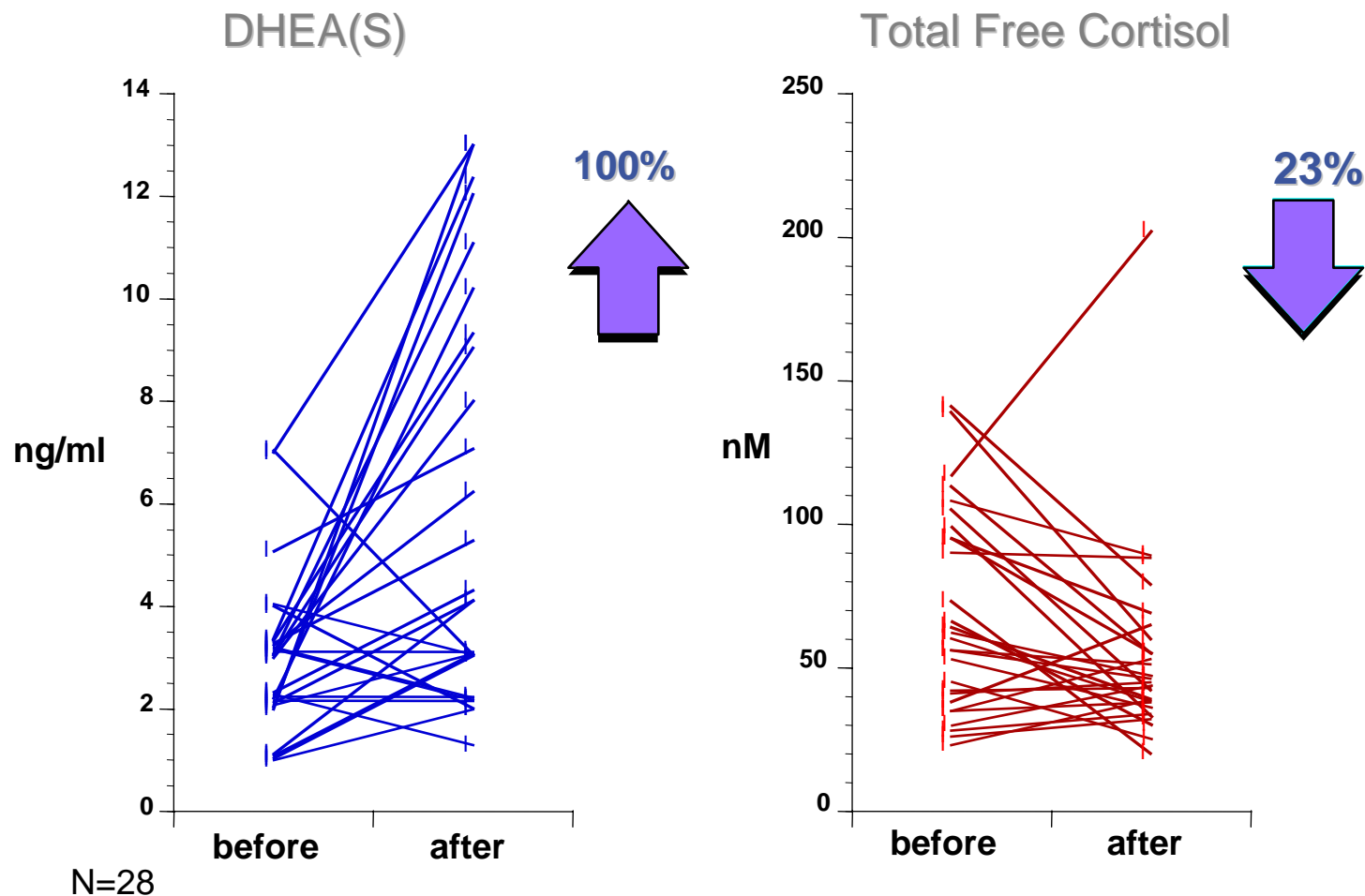
Steps of Neutral

- Heart focus
- Heart breathing

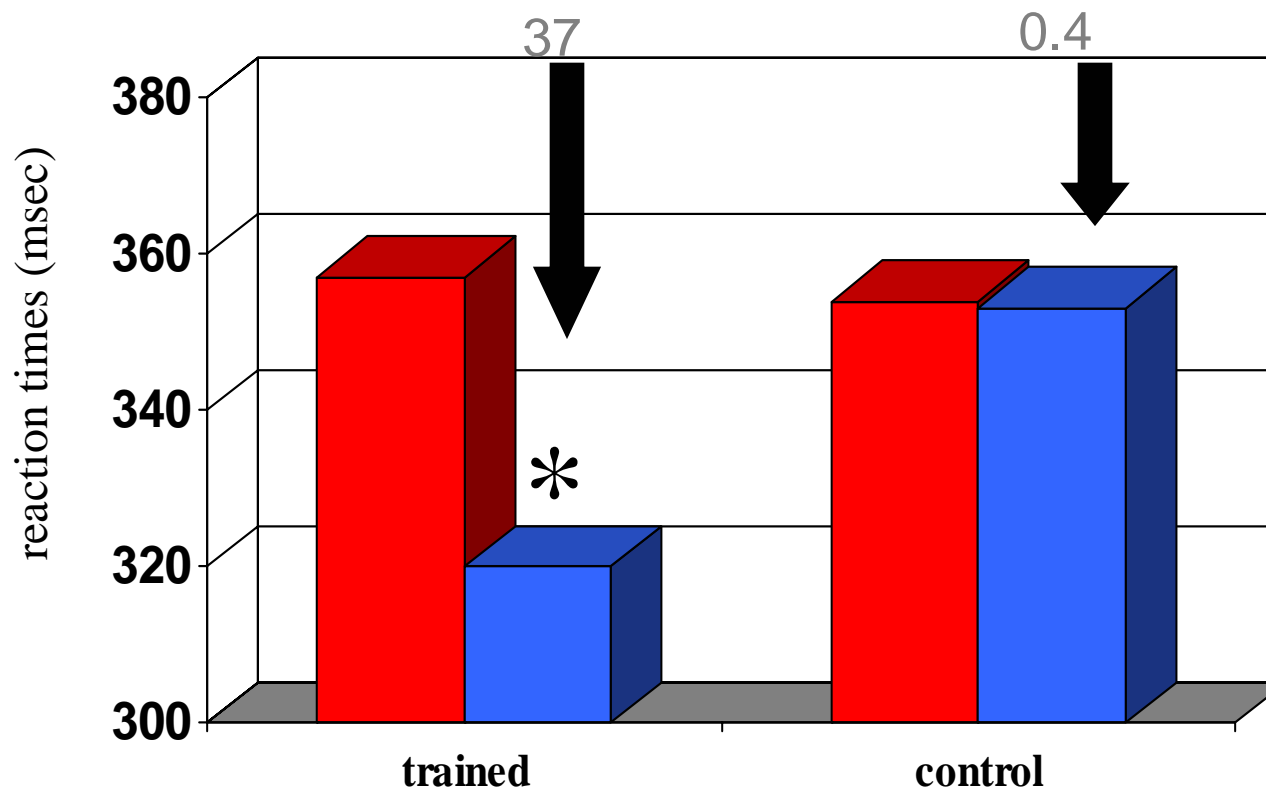


Neutral is not passivity.
It's a dynamic state of physiological coherence, accompanied by heightened mental and emotional clarity.

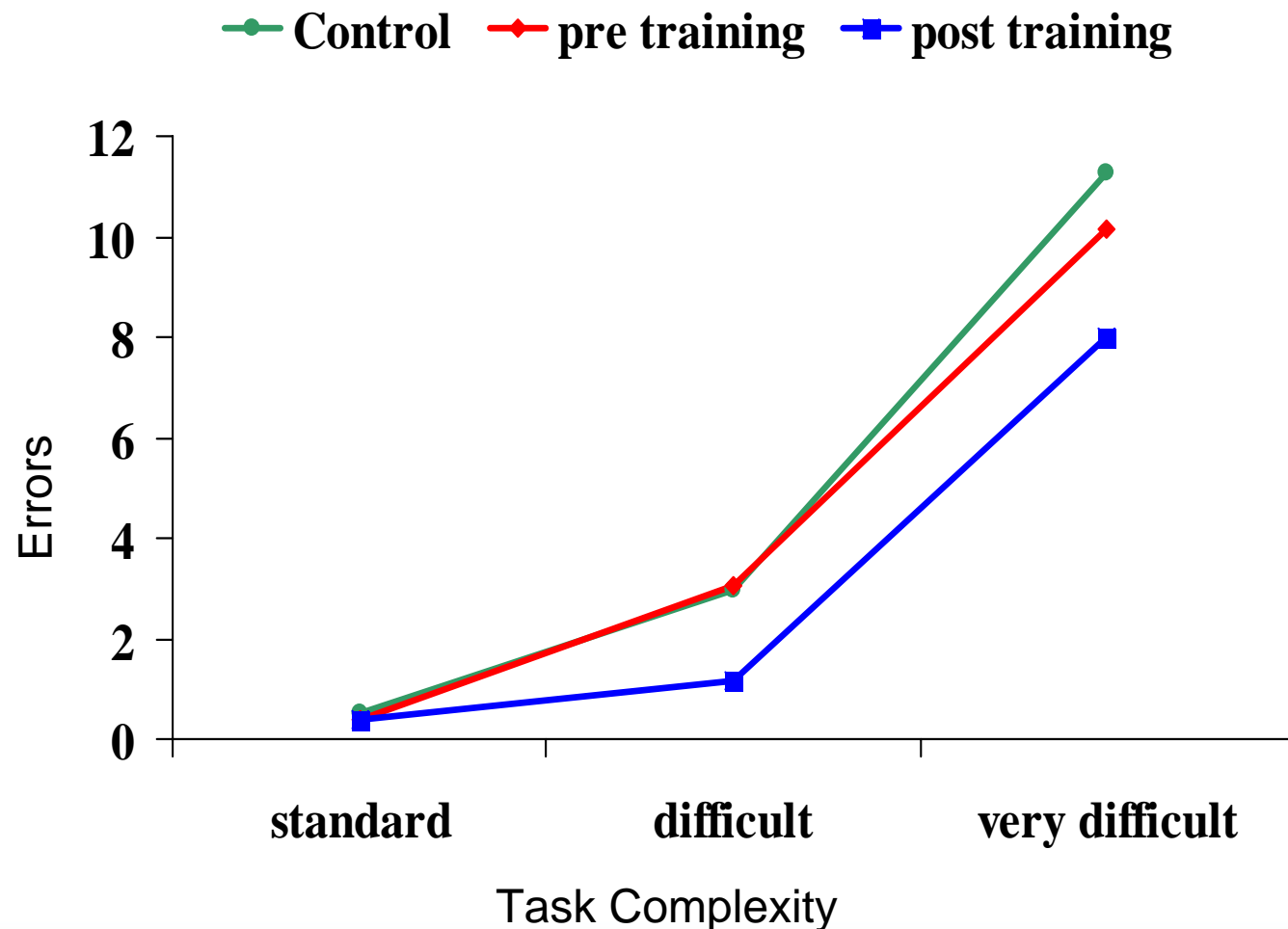
Hormonal Balance: Cortisol and DHEA



Cognitive Performance: Reaction Time Improvements



Cognitive Performance: Spatial Working Memory



Three Levels of Brain Function

3rd Brain: High Level

Control: *Foresight*

Functions and Basic Drives:

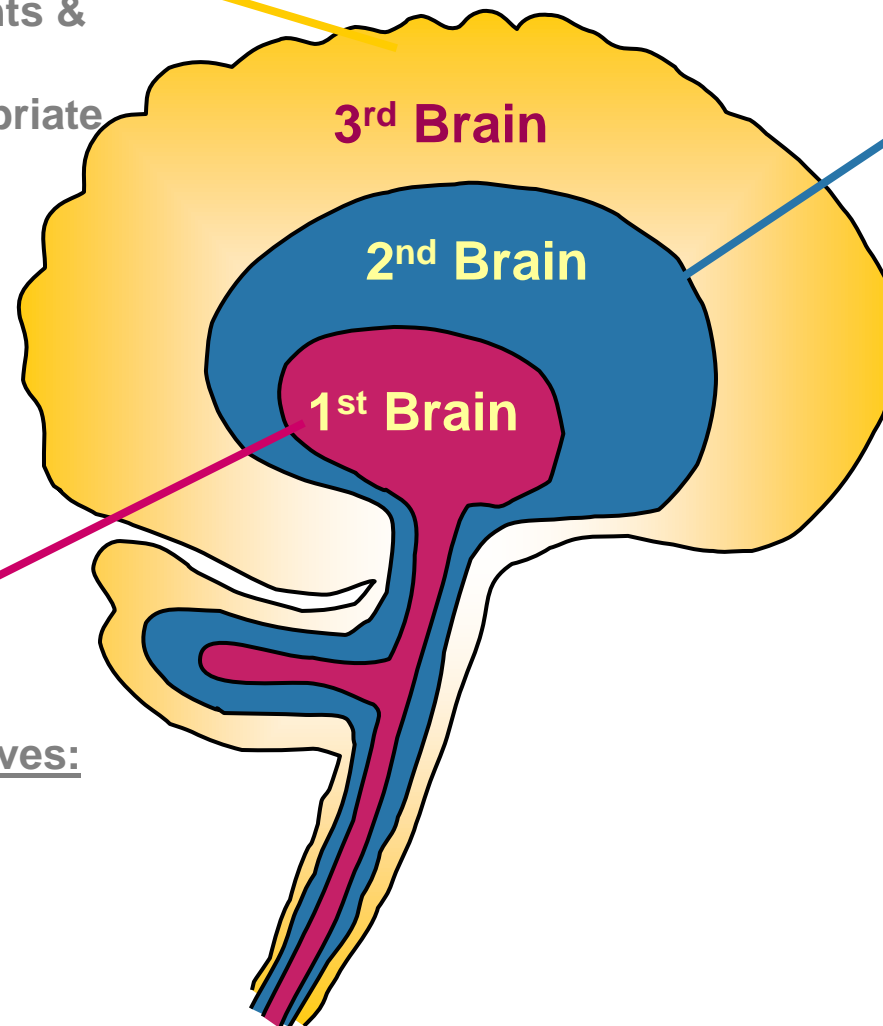
Fine perception
Differentiation of thoughts & feelings
Discrimination of appropriate behavior
Self-reflection
Self-awareness
Problem-resolution
Goal Satisfaction

1st Brain: Low Level

Control: *Reflex/Instinct*

Functions and Basic Drives:

Approach/Avoidance
Hormonal control
Temperature control
Hunger/Thirst
Reproductive drive
Respiration and heart rate control



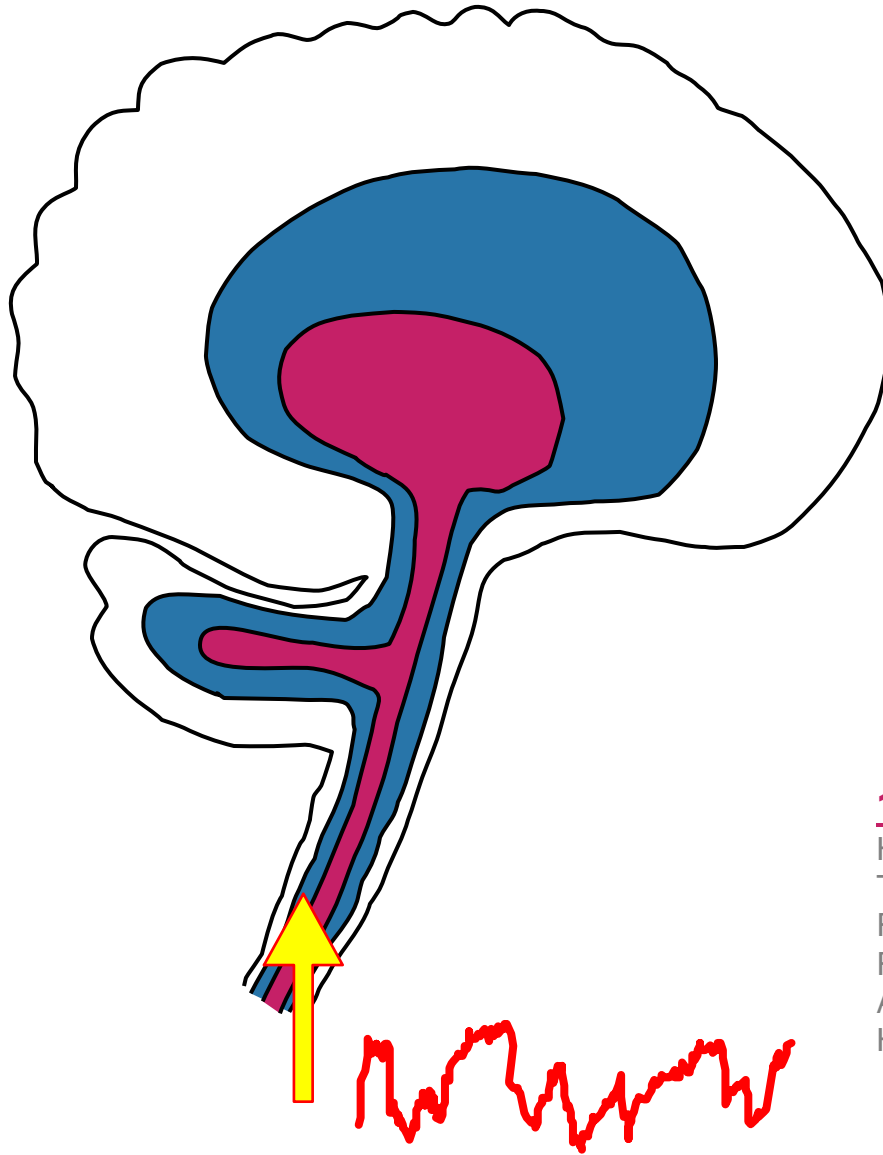
2nd Brain: Mid Level

Control: *Hindsight*

Functions and Basic Drives:

Territoriality
Fear
Anger
Attack
Maternal Love
Anxiety
Hate
Jealousy

Cortical Inhibition



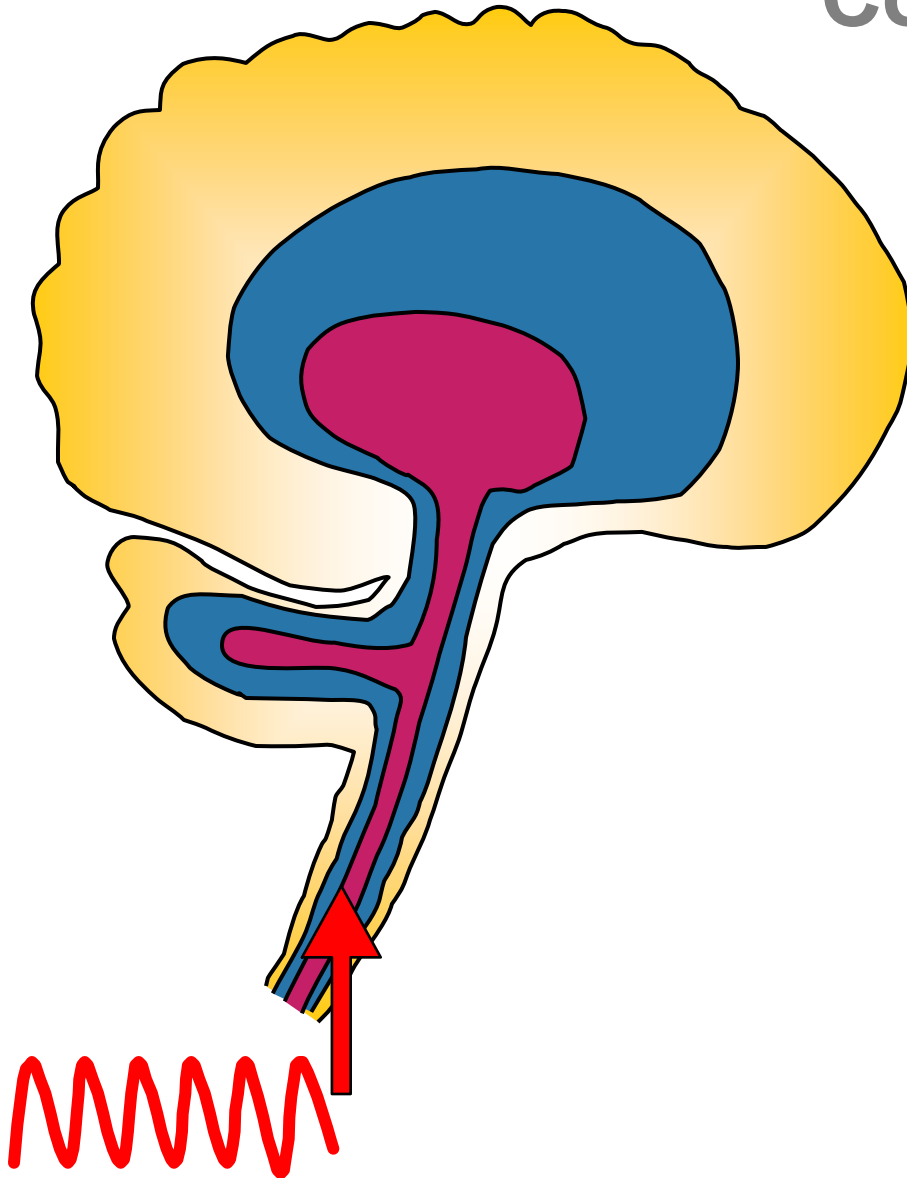
2nd Brain (mid level control)

Territoriality
Fear
Anger
Attack
Maternal Love
Anxiety, Hate, Jealousy

1st Brain (low level control)

Hormonal control
Temperature control
Respiration & heart rate, BP control
Reproduction drive
Approach / avoidance
Hunger / Thirst control

Cortical Facilitation



3rd Brain (high level control)

Fine perception
Differentiation of thoughts & feelings
Discrimination of appropriate behavior
Self-reflection, self-awareness
Problem-resolution
Goal Satisfaction

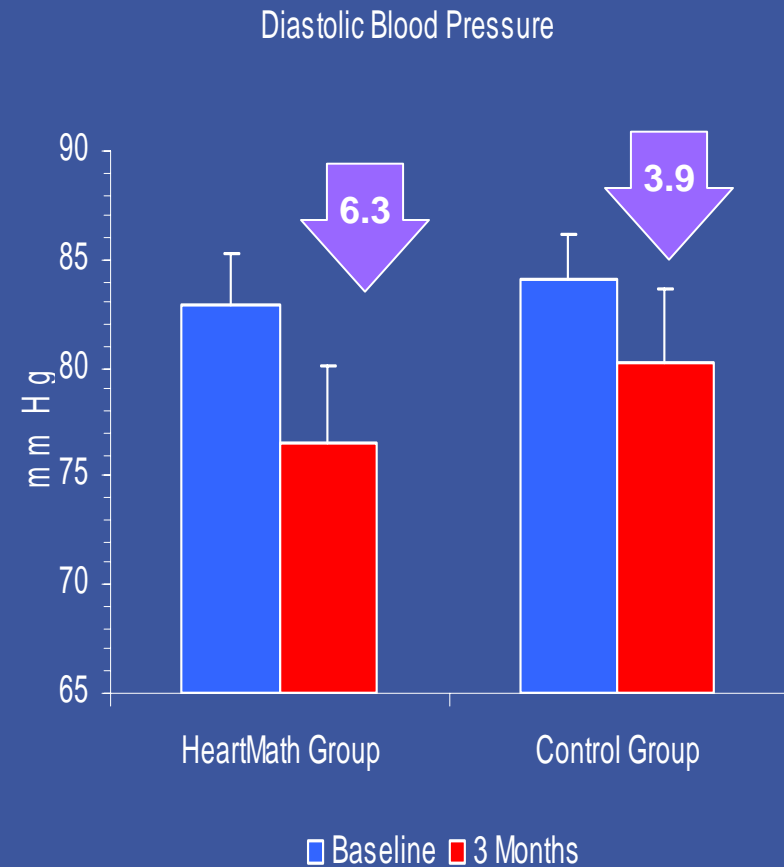
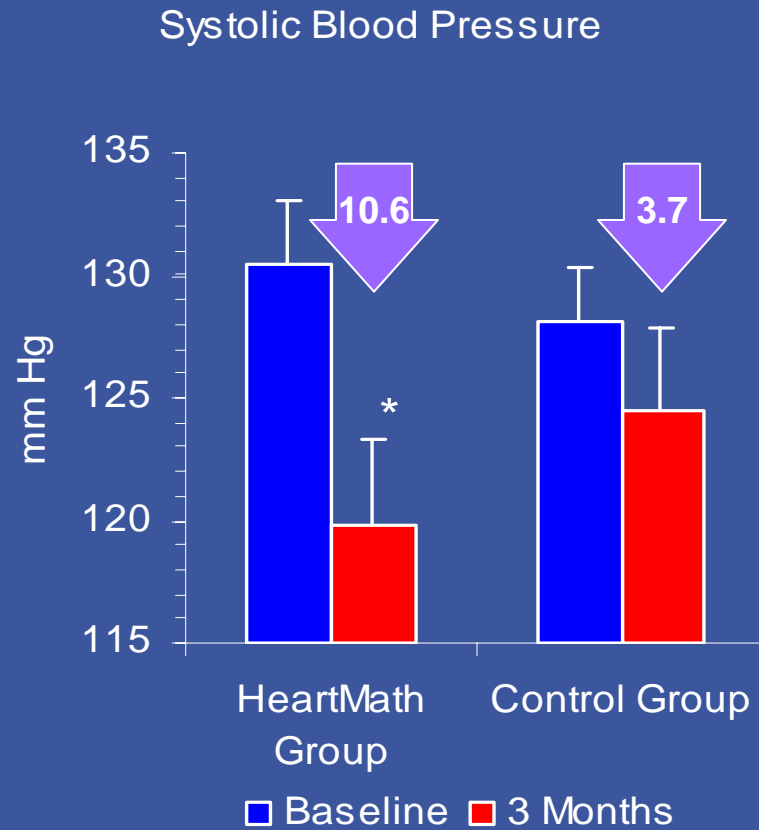
2nd Brain (mid level control)

Territoriality
Fear
Anger
Attack
Maternal Love
Anxiety, Hate, Jealousy

1st Brain (low level control)

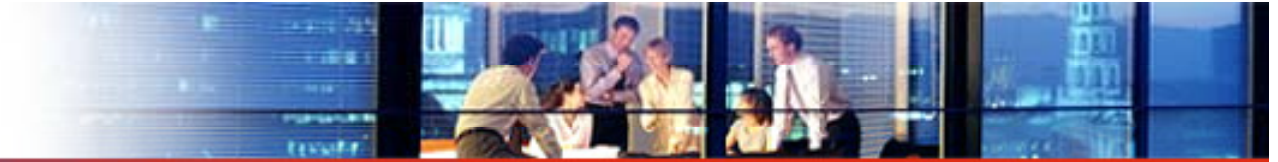
Hormonal control
Temperature control
Respiration & heart rate, BP control
Reproduction drive
Approach / avoidance
Hunger / Thirst control

Blood Pressure Reductions in Hypertensive Employees



mean \pm SEM, * $p < .05$

Adjusted for baseline BP, gender, age, Body Mass Index and medication status.

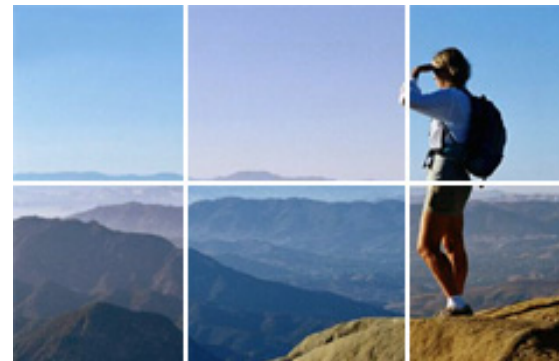


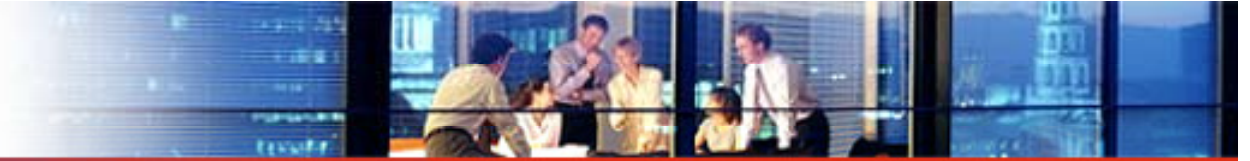
Take control: Add the juice

- Increased longevity *(Danner et al., 2001)*
- Reduced morbidity *(Goldman et al, 1996; Russek & Schwartz, 1997)*
- Increased cognitive flexibility *(Ashby et al., 1999)*
- Improved memory *(Isen et al., 1978)*
- Improved decision making *(Carnevale & Isen, 1986)*
- Increased creativity and innovative problem solving *(Isen et al., 1987)*
- Improved job performance & achievement *(Wright & Staw, 1994; Staw et al., 1994)*
- Improved clinical problem solving *(Estrada et al., 1997)*


Quick Coherence

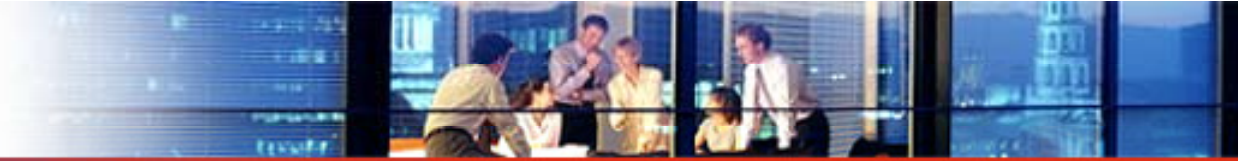
- Heart focus
- Heart breathing
- Heart **feeling**



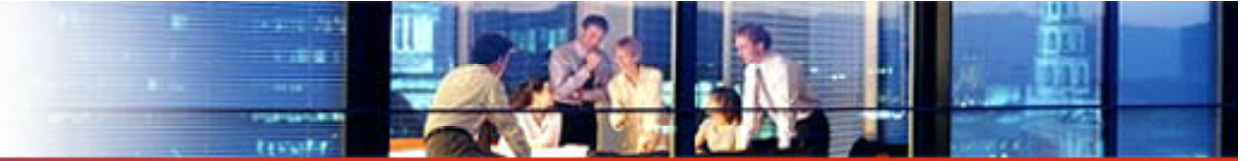


Performance tip #3

 **Enhance the work environment --
and your colleagues' productivity --
through your own positive emotions.**



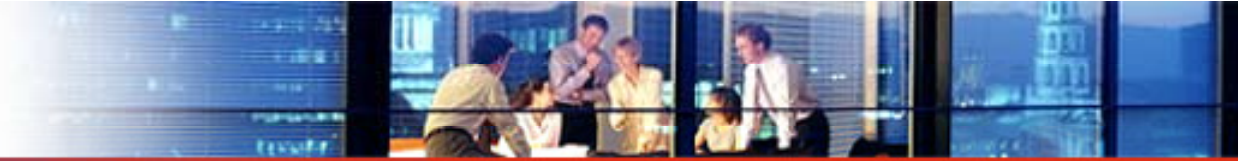
The Power of Coherent Leadership



Leadership Priorities in the Military

- Accomplish the mission
- Take care of personnel
- Create new leaders

How often do you focus only on the first priority?



“Why Should Anyone be Led by You?”

- They selectively show their weaknesses.
- They rely heavily on intuition to gauge the appropriate timing and course of their actions.
- They manage employees with something called “tough empathy.”
- They reveal their differences and they capitalize on what’s unique about themselves.

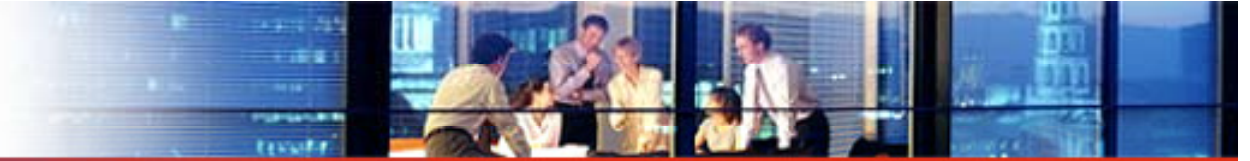
Goffee and Jones, Harvard Business Review, Sept/Oct 2000



What aspects of your life are you most motivated to improve?

- Make a plan for using Neutral, Quick Coherence and your full intelligence to improve what you can.





Thank you!

You can reach me at:
Bcryer@heartmath.com